



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

ID

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

09/193,653 11/17/98 MARSHALL

W P01936US4

EXAMINER

HM12/0703

ZEMAN, R

HEIDI S NEBEL
ZARLEY MCKEE THOMTE VOORHEES & SEASE
801 GRAND AVENUE
SUITE 3200
DES MOINES IA 50309-2721

ART UNIT

PAPER NUMBER

1645

DATE MAILED:

07/03/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/193,653

Applicant(s)
Marshall

Examiner
Robert A. Zeman

Group Art Unit
1645



☒ Responsive to communication(s) filed on Nov 17, 1998

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 1 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-22 is/are pending in the application.

Of the above, claim(s) 20-22 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-19 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 1645

DETAILED ACTION

Priority

The instant application is acknowledged as a continuation-in-part of Application No. 08/739,264 filed October 29, 1996 now U.S. Patent No. 5,840,318, which is a continuation-in-part of Application No. 08/517,016 filed October 18, 1995 now abandoned, which is a continuation-in-part of Application No. 08/376,175 filed January 20, 1994 now abandoned, which is a continuation-in-part of Application No. 08/059,745 filed May 11, 1993 now abandoned.

Election/Restriction

Applicant's election of Group I **with traverse** in Paper No. 4 Is acknowledged. Applicant's argument that Groups I-IV should be rejoined since no additional searches would be required since all would be encompassed within the search of the methods of Group I is acknowledged but is deemed to be non-persuasive. Group II is drawn to a pharmaceutical composition and is not encompassed by the methods of Group I. Groups III and IV are drawn to *in vitro* and *in vivo* bioassays and are not encompassed by the methods of Group I. Consequently, searches for Groups II-IV would be noncongruent with the search for Group I. The restriction requirement detailed in Paper No. 3 is maintained. Claims 1-19 are pending and currently under examination.

Art Unit: 1645

Claim Objections

Claim 12 is objected to because of the following informalities: The abbreviation SRF is used without defining its meaning when initially used. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is rendered vague and indefinite by the use of the phrase “filtering said separated product to remove any stress response products have a molecular weight great than 10kDa”. It is unclear what Applicant is claiming. Is the claimed filtering process removing only stress response products with a molecular weight greater than 10kDa or all substances with a molecular weight great than 10kDa? As written it is impossible to determine the metes and bounds of the claimed invention.

Claim 8 is rendered vague and indefinite by the use of the phrase “37 C or less”. Since there is no lower limit set forth in the claim it is impossible to determine at what temperature the

Art Unit: 1645

claimed invention becomes nonfunctional. Consequently, it is impossible to determine the metes and bounds of the claimed invention.

Claim 10 is rendered vague and indefinite by the use of the term “stationary phase”. It is unclear whether Applicant is referring to a stage of replication or motility. As such it is impossible to determine the metes and bounds of the claimed invention.

Claim 12 recites the limitation "the method of claim 1 wherein the filtrate containing SRFs <10kDa..." in line lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claims 17-19 are rendered vague and indefinite by the use of the term “sequential periods of stress”. It is unclear what is meant by this term. Does the stress factor change with each successive “period”? Are there rest periods (i.e. removal of stress factors) in between these “periods”? If not, then what demarcates the end of one period and the onset of the next? As written, it is impossible to determine the metes and bounds of the claimed invention.

Art Unit: 1645

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

a timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. a terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-19 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 5,840,318. Although the conflicting claims are not identical, they are not patentably distinct from each other because both are drawn to methods of activating and modulating the immune system of animals by the administration of stress response factors released by stressed bacteria.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) a patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1645

Claims 1-19 are rejected under 35 U.S.C. 103(a) as being obvious over U.S.

Patent 5,840,318.

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by a showing of a date of invention for the instant application of any unclaimed subject matter prior to the effective U.S. filing date of the reference under 37 CFR 1.131. Both the instant application and U.S. Patent 5,840,318 disclose methods of activating and modulating the immune system of animals by the administration of stress response factors released by stressed bacteria that are obvious minor variants of those instantly claimed..

Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Vuyst et al (Microbiology Vol. 142. 1996, pages 817-827).

Claims 1-19 are drawn to methods of modulating the immune system of an animal through the administration of the supernatant from stressed bacteria to the animal. Bacteria are stressed by reducing the bioavailability of nutrients through placement of bacteria in a non-nutritive solution. Claims 11, 12 and 15 require the removal of proteins larger than 10kDa and

Art Unit: 1645

are being examined as a method of modulating the immune system of an animal by administering a low molecular weight fraction of a supernatant derived from stressed bacteria.

De Vuyst et al. disclose methods of producing low molecular weight proteins from bacteria by subjecting them to a number of stresses. These stresses include: a change in temperature, a change in pH, a change in biomass (crowding or decreasing the amount of media), and adding toxins such as ethanol. Subjecting the lactic acid bacteria to any of these stressors results in the release of low molecular weight monomers of bacteriocin (approx 6kDa or less) that oligomerize to be about 30kDa. De Vuyst et al. removes components larger than the individual bacteriocin, approximately 6kDa. These bacteriocins are able to kill or harm other bacterial species. De Vuyst et al. suggests, but does not explicitly teach, the use of the bacteriocins as food additives. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have followed the suggestion of De Vuyst et al. and administer the low molecular weight proteins resulting from the stressing of bacteria to animals, as the bacteriocins can act to kill or render harmless other strains of bacteria.

Claims 1-15 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Vuyst et al, cited above, in view of Nanji (US Patent 5,413,785).

De Vuyst et al. discloses methods for producing the low molecular weight proteins from stressed bacteria, and suggests adding those proteins to food. Nanji discloses the administrations of lactic acid bacteria to humans, livestock, and other animals for protection against endotoxin-mediated shock. The bacteria can be administered a variety of ways. It would have been obvious

Art Unit: 1645

to one of ordinary skill in the art at the time the invention was made to have used the routes of administration and selected hosts to be immunized as set forth by Nanji for the administration of the low molecular weight stress proteins disclosed by De Vuyst et al.. Nanji indicates that lactic acid bacteria is able to protect against enterotoxin mediated shock, and De Vuyst et al. disclosed low molecular weight proteins released from lactic acid bacteria which could modulate the immune system.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over De Vuyst et al., cited above, further in view of Perdigon et al. (Journal of Food Protection Vol 53 No. 5, pages 404-410, 1996) or Emery et al. (U.S. Patent 5,538,733).

Claim 16 is being examined as a method of modulating the immune system of an animal by administering the low molecular weight stress proteins as an adjuvant. The teachings of De Vuyst are discussed above. Perdigon et al. discloses the use of lactic acid bacteria and the proteins produced therein as adjuvants in the generation of protection from enteropathogens. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the low molecular weight proteins disclosed by De Vuyst et al. as adjuvants for the induction of an immune response to another co-administered pathogen because Perdigon discusses the use of lactic acid bacteria as adjuvants for enteropathogens, and an increased immune response was disclosed and because De Vuyst et al. discloses that proteins produced by lactic acid bacteria have an immunomodulatory effect.

Art Unit: 1645

Emery et al. discloses the use of a bacteriocin, such as the one disclosed by De Vuyst et al., in combination with a wide variety of other pathogens, attenuated, killed, or subunits thereof. Emery notes bacteriocin is a effective immunogen, as the administration of bacteriocin results in a good immune response, that can prevent reinfection. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the low molecular weight proteins disclosed by De Vuyst et al. in combination with another pathogen because one would have expected an active immune response to have been generated as set forth in Emery et al.

Conclusion


No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert a. Zeman whose telephone number is (703) 308-7991. The examiner can be reached between the hours of 7:30 am and 4:00 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, Donna Wortman, Primary Examiner can be reached at (703) 308-1032 or the examiner's supervisor, Anthony Caputa, can be reached at (703)308-3995.

Robert a. Zeman

June 28, 2000


DONNA WORTMAN
PRIMARY EXAMINER